Household Arthropod Pests

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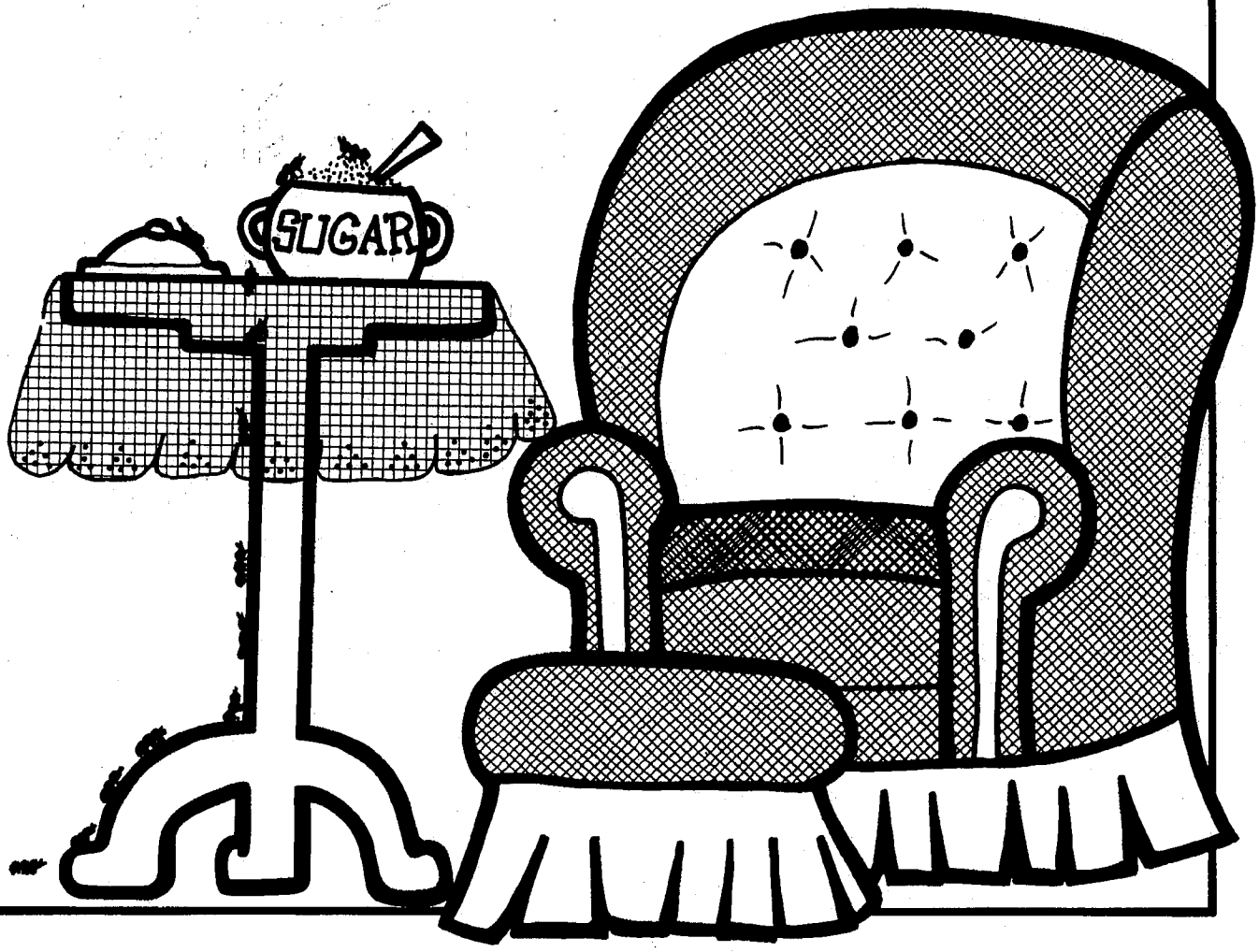

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Household Arthropod Pests

Mark B. Bates
E.U. Balsbaugh, Jr. and D.D. Kopp

"I can't stand them living in my house! They're driving me crazy!" Comments like these in reference to any of thousands of household arthropod pests are reported to entomologists, county agents and pest control representatives on a yearly basis.

Why are insects successful home invaders? Insects comprise the most diverse group of animals on the face of the earth and have successfully inhabited every imaginable corner of the earth. It's not at all surprising that a few insect species are well adapted for living in close proximity with man - even as close as on a person's body. The small size of insects allows them to enter homes through cracks and crevices and to remain undetected until they have developed large populations. Many insects that invade homes have tremendous reproductive potential. Not only are many capable of producing hordes of offspring from just one set of parents, many also have short life cycles accounting for multiple generations per year. A number of arthropod pests enter homes in the late summer and fall in search of a protected location for the winter months. Even if these invaders pose no threat to people, food or fabric in a home, their presence alone makes them a nuisance.

The purpose of this publication is to help identify many pests that are found in homes and to provide information on the pest's life cycle and behavior. The first step in solving a pest problem is to identify what the pest is. Correct identification allows the correct control measures for the specific insect.

You can identify many of these household pests yourself. You do, however, need to capture a specimen. The diagrams provided are an identification chart beginning at the top of each page. Two characteristics are described. Choose the one which best describes your specimen and proceed to the next pairs of descriptions until you arrive at an identification. The page numbers located below the diagrams are to texts which describe the habits and characteristics of each pest.

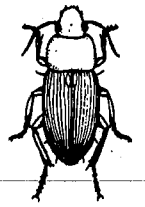
The pests included in this publication are the more common arthropods which can occur in homes. If you are unsuccessful at identifying your pest, preserve it in a small vial of rubbing alcohol and submit it to your county agent or send it to a diagnostic laboratory.

Chemical control recommendations are not listed in this bulletin because these often change on an annual basis and new products are continually being developed. Once identification of the pest is made, contact your county extension office for recommended control procedures.

Major Groups of Household Pests

How many legs does the pest have?

Pest with no more than 6 legs.

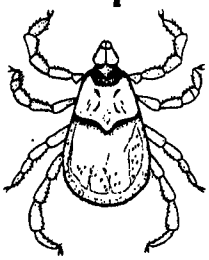


Insects
Adults & Immatures
Page 3

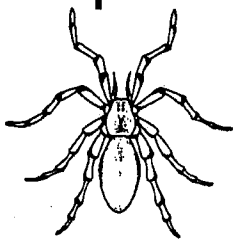
Pest with more than 6 legs.

Pest with no more than 8 legs.

Clover Mite
Page 16



Ticks
American dog
brown dog
Pages 14, 15



Spiders
house & jumping
brown recluse
black widow
Pages 17, 16

Pest with more than 8 legs.

Is the pest short and stocky.
(Length 2X the width.)

No

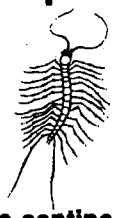
Yes

Sowbug
Page 13

Pest's body is cylindrical.

Pest's body is flattened.

Millipede
Page 13



House centipede
Page 13

Small centipede
Page 13

Insects

(Adults and Immatures)

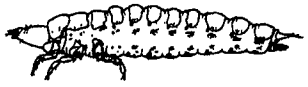
from page 2

Is the pest caterpillar- or maggot-like?

Yes (immatures)

Fly larva
(Maggot)
house, face, spotted-wing,
& cluster flies

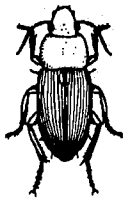
Moth larva
(Caterpillar)
webbing clothes, casemaking clothes,
& Indian meal moths



Beetle larva
black, common, furniture & varied carpet beetles;
confused & red flour beetles;
rove ground beetles

Larvae
(immature insects)
Page 4

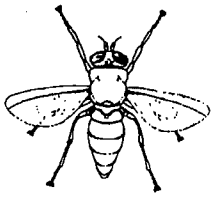
No



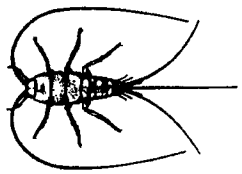
Adults

Does the pest have wings?

Yes **No**



Winged insects
Pages 5, 6



Wingless insects
Page 7

Larvae

(Immature Insects)

from page 3

Does the larva have legs?

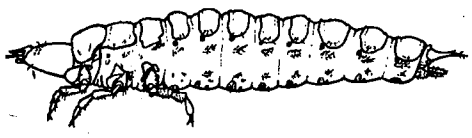
Yes | No

Example: Fly larva
(maggots)
house fly
Page 17

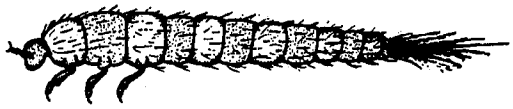
How many legs does the pest have?

Pest with more than 6 legs. | Pest with only 6 legs.

Example: Moth larva
(Caterpillars)
webbing clothes moth
casemaking clothes moth
Indian meal moth
Pages 10, 12



Example: Beetle larva
ground beetles
rove beetles
Pages 16, 17



Example: Beetle larva
carpet beetles
flour beetles
sawtoothed grain beetle
larder beetle
Pages 9, 10, 11

Winged Insects

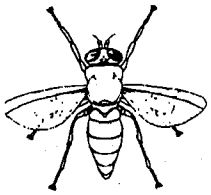
(Adults)

from page 3

Does the pest have 2 wings or 4 wings?

Pest with 2 wings. | Pest with 4 wings.

Hind wings not always apparent.



Fly
house fly
spotted-wing fly
cluster fly
face fly
fruit fly
Pages 8, 17

Does the pest have a constricted waist or is ant-like in appearance?

Yes | No

Winged ant
carpenter ant
'Page 9

Yes

Is the pest moth- or butterfly like?

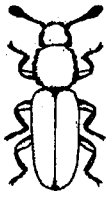
No

Moth
casemaking clothes moth
webbing clothes moth
Indian meal moth
Pages 10, 12

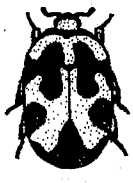
Yes[1]

Are the pest's front wings shell- or beetle-like?

No

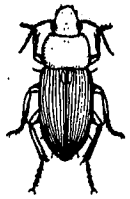


Sawtoothed grain beetle
Page 10



Carpet beetles
Page 11

Flour beetles
Page 9



Ground beetles
Page 16

Key continues on page 6

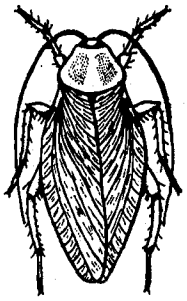
[1]Note These illustrations are only representative of several species of beetles. Other household beetles discussed in this text include rove beetle% larder beetle, strawberry root weevil, as well as various species of carpet beetles.

Winged Insects

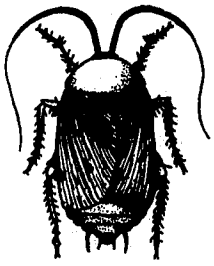
continued from page 5

Is the pest somewhat flattened from top to bottom?

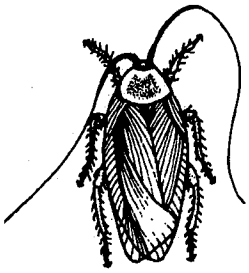
Yes | No



German cockroach
Page 8



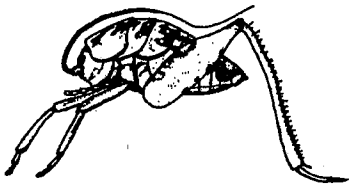
Oriental cockroach
Page 8



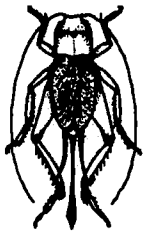
American cockroach
Page 8

Are the hind legs broadened and adapted for jumping?

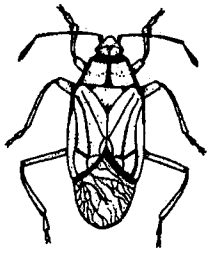
Yes | No



Camel cricket
Page 16



Field cricket
Page 18



Boxelder bug
Page 16

Wingless Insects

(Adults and Nymphs)

from page 3

Is the pest noticeably flattened?

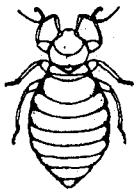
Yes | **No**

How is the pest flattened?

Side to side. | Top to bottom,

Fleas
dog & cat fleas
Page 14

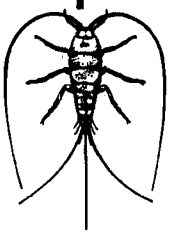
Lice
head, or pubic lice, "crabs"
Page 14



Bed bug
Page 14

Does the pest have 3 long hair-like tails?

Yes | No



Firebrat
(silverfish)
Page 12

Is the pest's body constricted at the waist?

Yes

No

What color is the pest?

Ants[1]

Reddish | Black

Pharaoh ant
Page 9

Ants

If the pest is not one of the above it may bean immature insect.
Page 4

[1]**carpenter (large, little black, grease, sweet (small) ants**
Page 9

Food Pests

Cockroaches and ants feed on stored food, yet they hide or nest away from the food. Fruit flies, meal moths, and flour, grain and larder beetles live in the stored food. Those pests which live in the food do not make the material inedible but do make it unpalatable. These pests are often introduced into homes in the egg stage in grain commodities which have been contaminated in the milling process or warehouse.

Cockroaches

Cockroaches are brown, tan or black-bodied insects that produce a detectable and repulsive odor in areas of infestation. They are nocturnal and rarely seen during the day. Places in the home that may harbor cockroaches are basements, cupboards, garages, and bedrooms. Cockroaches prefer areas that provide moisture, food, and easily accessible hiding places. Their bodies are flattened top to bottom. This allows them to squeeze into tight areas such as cracks, crevices, and areas under appliances. For this reason an infestation can go undetected for prolonged periods. The highest populations of cockroaches are found in areas where food products are stored or served. Because of this, cockroaches not only are a nuisance, but are of public health concern since cast skins and excrement can introduce filth into the processing and serving of food. Cockroaches feed on carbohydrates and protein sources and also will gnaw on book covers and leaflets, magazines, and cardboard.

American cockroach

The American cockroach is reddish-brown, 1 ½ to 2 inches long when fully grown, and has a dark pronotum (upper surface of segment immediately behind head) with a yellowish border. This cockroach can become abundant in dumps and garbage handling facilities; from these sites it will immigrate into restaurants, grocery warehouses, and basements of houses. A cockroach egg capsule is called an ootheca, and the ootheca of the American cockroach contains 15 to 20 eggs. This pill-shaped ootheca is about three-eighths inch long and the female drops and glues it to a sheltered area. The eggs hatch in 40 to 75 days depending on the temperature. Immature cockroaches take 10 to 16 months to develop into adults and the total life span can last up to **2½ years.**

Brown-banded cockroach

The brown-banded cockroach is brown, about one-half inch long when fully grown and possesses rather distinctive markings. Two light yellow to straw-colored bands run across its back. The brown-banded cockroach prefers living rooms of houses and hides in the cracks of woodwork and furniture. The ootheca is small and contains about 14 eggs. Females lay an average of 10 egg capsules during their life. Eggs hatch in 42 to 60 days and immature development takes two to three months.

German cockroach

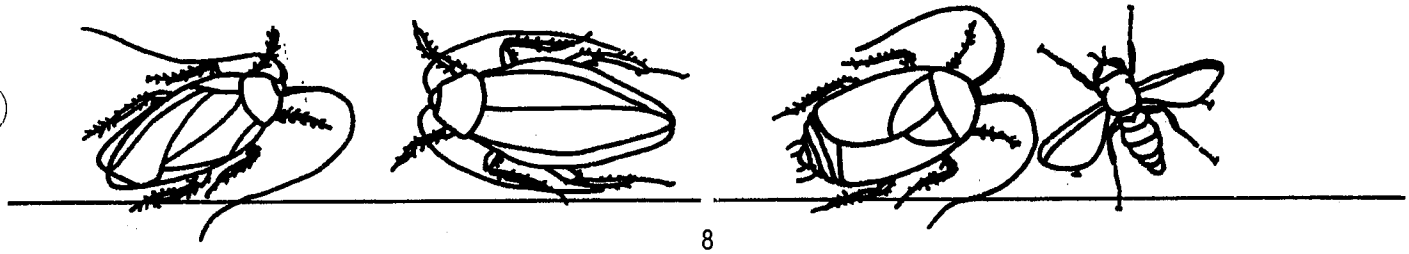
The German cockroach is about one-half inch long when fully grown and has two brown-black stripes running lengthwise along its pronotum. The kitchen and bathroom are the most frequent sites of infestations; however, German cockroaches are commonly found throughout the house. The female German cockroach carries its ootheca for about two weeks or until the eggs are ready to hatch. She usually produces between four and nine egg capsules in her lifetime and each capsule contains an average of 30 eggs.

Oriental cockroach

The oriental cockroach adult is entirely black, short winged, and about 1 to 1½ inches long. This cockroach prefers damp areas such as basements, areas around pumps, where pipes leak, or in sewer lines. For this reason they are sometimes called "waterbugs." The life cycle of the oriental cockroach requires between 250 and 400 days. During this time the female will produce approximately 12 to 18 egg capsules, each containing 10 to 20 eggs. These eggs will hatch in about six weeks to two months depending on the temperature.

Fruit flies

A number of different species of flies are commonly referred to as fruit flies; however, the vinegar fly is the most commonly encountered species in homes. These small flies are about one-eighth inch long with red eyes and are small enough to fly through window screens. The fruit fly is attracted to fresh fruit and vegetables. Once natural fermentation begins, these become even more attractive to the flies. Bananas, potatoes, tomatoes, pineapples, apples, oranges, and grapes are all favored by fruit flies.



Female fruit flies mate several times and lay an average of 500 eggs directly upon fermenting media. The eggs hatch in a day and larvae immediately begin to feed. They will feed for five to six days depending on the temperature of the media. The larvae move to drier places to pupate upon completion of feeding. The pupal stage requires about two days. The first sign of a fruit fly problem in a house is the appearance of adults. Solving a fruit fly problem In a home involves finding and disposing of the fermenting vegetables or fruit where larvae are developing.

Ants

Ants in the home are the most common household problem. "Little black," "sweet," "grease," "Carpenter," and "pharaoh" ants are common names given to a few species that commonly invade homes. Some ants forage for food In homes. The type of food infested can be a clue to the particular species found in the home. The carpenter ant seldom forages for food In a home but will establish its nest in the woodwork of older homes. The pharaoh ant will establish its nest within the wall spaces and forage for food in a home throughout the year. "Sweet" or "grease" ants are common names given to a number of species and these names reflect the type of food they seek.

Each nest or colony contains several different forms of ants. Worker ants, which are sterile females, are the most commonly encountered form. Winged ants are male or female reproductives that swarm from a nest once a year. Two other types of ants that remain in the nest and are only seen If the nest is disturbed are the large wingless queen and the maggot-like immatures.

Ants are social Insects. Worker ants perform all of the labor necessary to maintain the nest, care for the larvae and forage for food. The queen ant rarely moves from the inner chambers of the nest and is responsible for laying all the eggs. The majority of the larvae in a nest will develop into workers, but a few will emerge as winged females and males. Winged male and femals leave the nest to swarm and mate. Newly mated femals search for a site to establsh a new colony. When the young femal ant finds an appropriate nest sites she tears off her wings and lays severaleggs. She willcare for and feed these first larvae until they pupate. Once the first worker ants emerge they take over the labor of expanding and maintaining the colony.

Pharaoh ants

Pharaoh ants are small, about one-sixteenth inch long, and are brownish-yellow with a darkened area found on the abdomen. They are frequently found crawling along cracks in walls where their nests may be concealed. They feed upon many different types of food and will actively forage In cabinets for accessible food.

Larder beetle

The larder beetle Is a cosmopolitan species of carpet and animal hide beetle commonly found In dried, cured meats stored at room temperature. The adult Is one-fourth to three-eights inch long and dark brown to black with a yellow to white band running across the foremost part of the wings covers The light colored band usually has six dark spots, three on each side. Both adults and larvae are found In stored commodities such as tobacoo, ham, dried fish, dried pet food, and cheese.

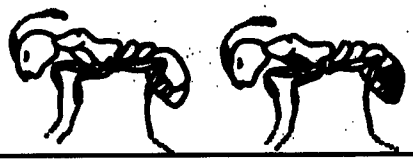
Larder beetles enter homes during the summer months, during which female beetles search for suitable places to lay eggs near a larval food source. The female can lay from 100 to 175 eggs In her lifetime with peak egg laying activity occurring from June to August. Eggs will hatch in one to two weeks.

The larvae are easily recognized. They are brown, about one-half inch long when fully grown, and have two upward curved spines on the posterior end. Larvae molt five to six times before pupating. The larvae stop feeding during the next to last larval stage and begin to wander in search of a lace to pupate. Mature larvae will bore Into wood, styrofoam to develop in a protected pupation site. The pupal stage lasts for a week. The entire life cycle from egg to adult requires about 40 to 50 days under ideal environmental conditions and when there is adequate food.

Flour beetles

The red flour beetle and confused flour beetle are very similar in appearance, habits, and in selection of food and habitat. Adults of both species are about one-eighth inch long and are a reddish-brown color. The margin of the pronotum of the red flour beetle Is slightly curved while the margins of the pronotum of the confused flour beetle are parallel.

Both pests are injurious to farm-stored grains, cereals, pasta, spices or any carbohydrate-containing



stored food product. Most home owners first realize they have flour beetle infestation when the adults are seen wandering about the kitchen. To detect flour beetles, frequently examine open cereal or flour containers for adults and larvae. The brownish-white, small larvae are between one-sixteenth and one-eighth inch long and appear slender and wiry. Incidence of flour beetles in the home can be reduced by keeping all shelving areas clean of spills. Opened packages of flour-based products should be sealed in snap-top canisters. Storing flour products in tight containers will reduce the potential of an infestation spreading to other stored commodities in the home.

Sawtoothed grain beetle

The sawtoothed grain beetle is a cosmopolitan species that attacks cereals, pasta products, dried pet foods, spices, drugs, and chocolate. Adults are about one-tenth inch long, brown, and flattened. The margins of the pronotum have teeth-like projections on each side. Adults of the sawtoothed grain beetle can live up to three years, with an average life span of about 10 months.

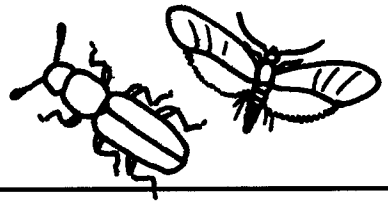
Females lay their eggs either directly into the larval food source or in the vicinity of the food. Adults emerge in early spring and lay from 45 to 290 eggs before winter. Eggs hatch in about one week. Fully grown larvae are about one-eighth inch long and are yellow to white with a brown head capsule. There are three to four larval stages; pupation occurs in the last larval skin. Pupal development requires approximately six days. Development of the sawtoothed grain beetle from egg to adult takes about 50 days and adults will live throughout the year.

Indian meal moth

The Indian meal moth is about one-fourth to three-eighths inch long when the wings are folded back; the wingspan is about five-eighths inch. The moth with wings folded on its back has a two-tone color pattern; copper color wing bases and a wide band of grey across the wing tips.

Larvae of the Indian meal moth feed on a wide variety of foods such as dried fruits, seeds, nuts, dog food, chocolate, candies, and grain or grain products. The larvae are about one-half inch long, white with a red or pink to almost greenish tint, and a brown head capsule. The Indian meal moth overwinters in the larval stage, pupates in the spring around March, and the adult emerges in April. In heated buildings this moth will produce continuous generations. The female starts egg laying the week after emergence and lays an average of about 150 eggs within three weeks.

Larvae begin feeding shortly after hatching and spin webbing over the food source to create tunnels as they feed. The first indication of presence of the Indian meal moth is usually observation of a matted layer of webbing, frass (excrement), and food materials covering stored commodities. The larval stage usually lasts an average of about 150 days depending upon several environmental factors.



Paper and Fabric Pests

Carpet beetles

Black carpet beetle

The black carpet beetle is the most widespread and destructive of all the carpet beetles. The adult is about three-sixteenths inch long and dark brown to black. Most carpet beetle infestations are inadvertently carried into homes in infested food commodities. Inside the home, they will feed upon woolen rugs, clothing, silk, yarn, felt and fur, as well as many different types of seeds and cereals.

The female black carpet beetle deposits small, creamy white eggs in the lint which accumulates around baseboards, in furnace ducts, and other places. The eggs hatch in six to 10 days, depending on the temperature. Mature larvae of the black carpet beetle are very hairy and are about one-fourth inch long and dark brown or straw-colored. They are repelled by light and move slowly. Larvae develop to pupation within 250 to 630 days. The pupal stage lasts between six and 24 days.

The adult life cycle is short compared to that of the immature. Adults live for an average of 37 days. Adults mate within the first week after emergence and a female will lay 42 to 144 eggs.

Common carpet beetle

The common carpet beetle is primarily a pest of carpets and fabrics, although it will also feed on animal products such as feathers, leather, furs, and silks. The major damage is done by immatures or larvae, which chew holes in fabric and carpets. The adults cause little damage. This beetle is commonly found in the northern U.S. but has occurred in states as far south as Texas and Florida. Because of its wide geographic range, this species is known by several regional common names such as "buffalo bug," a name used in the eastern part of the country, and the "old fashioned carpet beetle" in other parts of its range.

The adult is small, oval, and black with white spots along the outside of the back. In the middle of the back there is a longitudinal orange-red band. The female common carpet beetle secures its small white eggs between the fibers in fabrics. A female may lay up to 40 eggs at one time and these will hatch in 10 to 20 days. The larvae are brown to reddish-brown, hairy and about one-eighth inch long when mature. The larvae molt between four and six times, and pupate in the last larval skin. Larval development takes about 60 days and the pupal stage development requires about 12 days.

Furniture carpet beetle

Damage caused by the furniture carpet beetle was first detected in homes in the southern United States during the early twentieth century. This species is most destructive to products of animal origin such as leather and hides or upholstered furniture. The furniture carpet beetle spends most of its life in the larval stage feeding upon wool, hair, fur, leather, feathers, and silks. The adult is about one-eighth inch long with patterns of yellow, white, and black on its back; the underside is lighter tan and the legs are yellow. The furniture carpet beetle is very similar in appearance to the varied carpet beetle.

Females mate within the first three days after emergence from the pupae and lay small, white eggs on materials suitable for larval development.

Larvae of the varied carpet beetle and furniture carpet beetle are difficult to differentiate. They are both chestnut brown when fully grown and approximately one-eighth to one-fourth inch long. Pupae are white and encased in the last larval skin. The pupal stage lasts for approximately 15 days. The pupae molt to adults and remain in the pupal case on the average of 75 days. The range of time required for development from eggs to reproductive adult is from 150 to 400 days. Females of the furniture carpet beetle live for about two weeks. Eggs hatch in about three weeks.

Varied carpet beetle

The adult of the varied carpet beetle is about one-eighth inch long and appears similar to the adult furniture carpet beetle. Larvae of the varied carpet beetle feed on a variety of animal and plant products, such as carpets, skins, furs, stuffed animals, leather, and dried insect specimens. In addition it will feed on stored food products, such as corn, rye meal, and red pepper.

The female varied carpet beetle deposits small (one-thirtysecond inch), cream colored eggs in areas near food suitable for larval development. Eggs hatch in about 20 days and the larvae begin to feed. Fully grown larvae reach three-sixteenths inch in length. Larvae are dark brown and have light brown longitudinal bands. Larval development to the pupal stage requires from 200 to 300 days. The pupal stage lasts approximately two weeks.

Adults remain dormant within the pupal case for an undetermined teme. Free living adult males live about 30 days, while the females live about 45 days. The complete life cycle, from egg to adult requires from 250 to 350 days.

Webbing clothes moth

The webbing clothes moth is distributed worldwide. Only the larval stage causes damage, yet the appearance of the adult usually signals the first sign of a problem.

Adults have shiny golden or silver wings and a gold or silver body with a reddish tint. The wingspan is one-half inch or less and the hairs around the edge of the wings give them a fringed appearance. When the wings are folded back over the body, the moth is about one-fourth inch long. The webbing clothes moth is not attracted to light and prefers darker areas such as closets or other enclosed areas.

The female lays about 40 to 50 eggs during a life span of seven to 30 days. Eggs hatch in about 10 days during warm periods but require up to 40 days in cooler areas. Newly hatched larvae immediately begin searching for food. Larvae are white and about one-half inch long when fully grown. Feeding larvae spin sliken tunnels in which they incorporate fibers of the food source as well as larval excrement. These tunnels are used for larval movement, protection, and concealment. Larval development is temperature dependant and requires from 40 to 400 days. Larvae pupate within the silken tunnels. The pupal stage lasts about 20 to 30 days.

Casemaking clothes moth

The casemaking clothes moth, another pest in fabrics, is not as common or economically important as the webbing clothes moth. This moth is more troublesome in the southern United States.

The casemaking clothes moth is buff colored with three darker marks on each forewing and is about one-half inch wide. Adults can be found running across the surface of infested fabrics when exposed to light. Casemaking clothes moth larvae construct a protective case of silk into which they weave fibers of materials they have fed on. This protective sheath is carried by the larvae wherever is goes. The mature casemaking moth larvae seek. out and moves to a secure areas such as a crack or crevice and pupates within its larval case. There are two generations per season in southern regions but only a single generation in cooler northern areas. However, in heated buildings in northern regions as many as five generations per year may develop.

Firebrats and silverfish

Firebrats and silverfish are wingless insects about one-half inch long with minute scales covering their bodies. Both have three long appendages or bristles protruding from the tip of the abdomen and a pair of long antennae on their head. The grayish silver coloration of silverfish distinguish them from firebrats. Firebrats have alternating tan to brown patches on their backs. Silverfish prefer damp, warm places, such as a basement and bathroom wall areas adjacent to water pipes. Firebrats prefer warm, dry areas, such as furnace rooms and areas near stoves. Boiler rooms can harbor large population of firebrats. Firebrats and silverfish feed on carbohydrate-containing products such as the starch in old book bindings, flour products, clothing, and flour based wallpaper paste.

Basement Pests

Centipede

Centipedes, or hundred leggers, are worm-like relatives of insects (arthropods) with a distinct head, a flattened body, long antennae, large pincer-like jaws, and many body segments each bearing a single pair of legs. Most North American species are quite harmless even though they appear formidable. Centipedes are beneficial predators since they feed upon insects and other arthropods. Most species live in the soil and are seldom encountered by man. The exception is the house centipede, which will establish inside of homes.

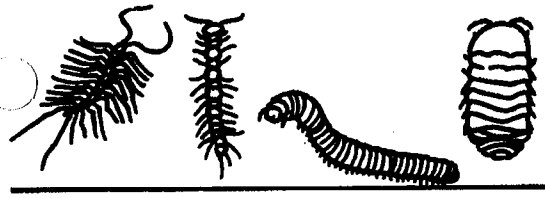
The house centipede can be distinguished from other centipedes by its long legs and dashing speed which makes it difficult to catch. The house centipede holds its cylindrical body well above the floor as it runs. An interesting behavior pattern of the house centipede is that it stops abruptly and waits motionless a few seconds before it again darts off.

Millipede

Millipedes are brown or black, cylindrical, worm-like arthropods with two pairs of short legs on each body segment. Millipedes feed upon decaying plant materials and do not bite. They migrate into homes in the fall seeking winter shelter. During summer months these soil inhabiting creatures can be found in large numbers in the rich soil of flower beds next to homes. As fall approaches millipedes enter structures through cracks, crevices, and under weather stripping. Once in homes they move to cooler, damper areas such as basements and lower level rooms.

Sowbug

Sowbugs are short, stubby, hard-bodied arthropods, armadillo-like in appearance. Sowbugs range in size from one-sixteenth to three-sixteenths inch long and are grey. Sowbugs have one pair of legs per body segment. They prefer living in dark, damp areas in the home where fungi and decaying organic materials are found. Sowbugs will seldom damage food or fabrics in the home. They are scavengers, do not bite, and are simply a nuisance pest.



Pests of Man and Pets

Bedbug

The bed bug is flattened top to bottom, red-brown, wingless, and one-fourth to five-sixteenths inch long. It is a nocturnal blood sucking parasite of man which engorges itself with blood to the point of appearing swollen. Bed bugs are active at night, feeding while the host sleeps; thus, the highest populations are usually found in bedrooms. During daylight hours bed bugs hide in cracks and crevices near sleeping quarters. Bites on humans appear as welts, commonly on the back, hands, wrists, and neck. Severe itching is commonly experienced several hours after the painless bite. The itching is caused by digestive juices injected into the host at the time of the bite. Other indications of bed bug infestations are a characteristic odor or excrement spots left on the bed sheets or around hiding areas in the room.

Lice

The body louse is approximately one-eighth inch long and is rather difficult to see. The eggs, called nits, are attached to clothing, primarily along seams. The only time a body louse moves to the body is when it feeds; otherwise, it stays in the clothing. Body lice become a problem when the same clothing is worn day and night for weeks at a time. Body lice are very uncommon in this day and age in the United States because of appropriate hygienic practices and frequent laundering of clothing.

The head and pubic or crab louse are two other types of lice found associated with humans and are more commonly encountered than body lice. The head louse attaches its eggs to the hair on the human head. The pubic louse lives in the pubic region and attaches its eggs to human pubic hairs and occasionally eye brows. The pubic louse is commonly referred to as the "crab louse" or "crabs" because it resembles a miniature crab. Head lice and crab lice live only on the human body. The only time they are found in clothing or bedding is when they have been dislodged from the host.

Dog and cat fleas

Dog and cat fleas are similiar in appearance: both are about one-sixteenth to one-eighth inch long, flattened side to side, and dark brown. They can readily jump a distance of several feet with their well developed hind legs. Flea infestations are brought into the home on pets and can become troublesome to humans. Household infestations of fleas are often first noticed in the summer when people return home having been away for an extended period.

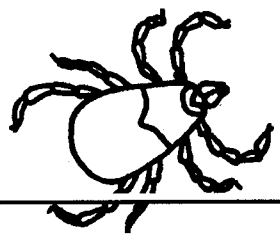
Adult fleas feed on the blood of warm blooded animals and cause dermal irritations. Scratching the site of the bite can cause significant irritation to surrounding skin. When pets are not available, dog and cat fleas will feed on man. The two species have similar life cycles and control is the same for both. Control of fleas in the home involves treatment of pets (for adult fleas) and the premises (for both adults and larvae of fleas).

Ticks

Ticks frequently make their way into homes - often by way of our pets or humans. Several species of these non-insect arthropods are important to residents of the Upper Great Plains because they possibly transmit several diseases via their blood-sucking feeding. Rocky Mountain spotted fever can be transmitted by both the American and brown dog tick. The American dog tick is also capable of transmitting another disease, tularemia (also known as rabbit fever), and directly causes tick paralysis. Since 1975 a new tick-related disease, Lyme disease, has been recognized. This disease now occurs in 36 states. in the Upper Great Plains, the disease has been confirmed in Minnesota and now surpasses Rocky Mountain spotted fever as this country's most common tick-borne disease. Lyme disease, named for Lyme, Corm., where it was first detected in 1975, is transmitted by the deer tick.

American dog tick

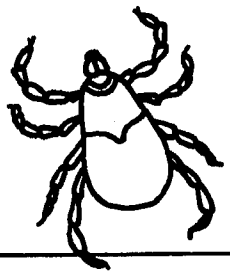
The American dog tick is the most commonly encountered tick. This tick will be encountered in abundant numbers through mid-June and then subside during mid-August. Adult ticks search for a warm blooded host to take a blood meal. A single mated, blood engorged female tick can lay up to 3,000 eggs. Adult ticks attach to larger animals such as man, dogs, horses, cattle, etc. Keeping weeds, grass, and brush mowed low to the ground will help to reduce tick habitat.



Brown dog tick

The brown dog tick not only is a pest of dogs but is a nuisance in the home. The adult brown dog tick is usually found in or around the ears and between the toes of dogs, while the younger nymphs and eggs are found on the back or in longer haired areas. Both adults and nymphs can reduce the vitality of the dog by sucking the blood. Ticks also increase the irritability of the dog. This tick rarely attacks man. Ticks in the home congregate around mouldings, behind base boards, curtains, furniture, and windows.

The female tick feeds on a dog for about three to six days until she is engorged with blood. The fully engorged tick increases in size to larger than five-sixteenth inch. When engorged, the color changes from red-brown to bluish-gray. Once engorged, the female then releases her grip on the dog to search for a place to safely lay her eggs. Normally this searching behavior terminates in crevices and cracks in the vicinity of the dog's bed. The brown dog tick has a tendency to climb upward while searching. The female will lay an average of 2,000 eggs, which will hatch in about 45 days. The hatch results in small, six-legged, active seed ticks. The seed ticks develop two additional legs in later molts.



Nuisance Pests

Boxelder bug

The adult boxelder bug is about one-half inch long, brownish-black, and marked with three narrow red strips on the pronotum with a V-shaped red mark on the folded wings. The abdomen under the wings is bright red. During the summer months, boxelder bugs live, feed, and reproduce on female boxelder trees. In the fall, boxelder bugs begin to search out overwintering sites and will be found in large congregations on the south and west sides of buildings. This search often leads them into homes. They will move into a home in large numbers and crawl into cracks and crevices in the structure, often gaining access to the living areas. They do not cause damage to the home or its contents. They are plant feeders with sucking mouthparts, but infrequently feed on household plants. They are a nuisance by presence alone.

Camel cricket

Camel crickets are dark brown to straw-colored and about three-fourths inch long. They are wingless crickets that have a preference for damp basements and are nocturnal in habit, preferring to remain hidden in cracks and crevices during the day. Camel crickets, also known as cave crickets, will often gain entry into a home in late summer. They enter homes at this time of year seeking cool, moist areas. Places near condensation on pipes and puddles of water are areas camel crickets frequent. Camel crickets seldom feed on clothing, furniture, or draperies. They are pests by their presence alone. The camel cricket is very easy to recognize because of its hump-back shape, long antennae, and lightening fast leaps and scurries.

Field cricket

The field cricket is black and about five-eighths inch long. These crickets pass the winter as eggs in the soil outdoors. Eggs hatch in the spring and nymphs grow throughout the summer to reach the adult stage by August. Although they have been known to chew holes in furniture and clothing, their chirping and presence alone makes them a nuisance. During late summer, field crickets move close to buildings seeking the cool and shade offered by these structures. They work their way into cracks and crevices and often gain entry into homes.

Clover mite

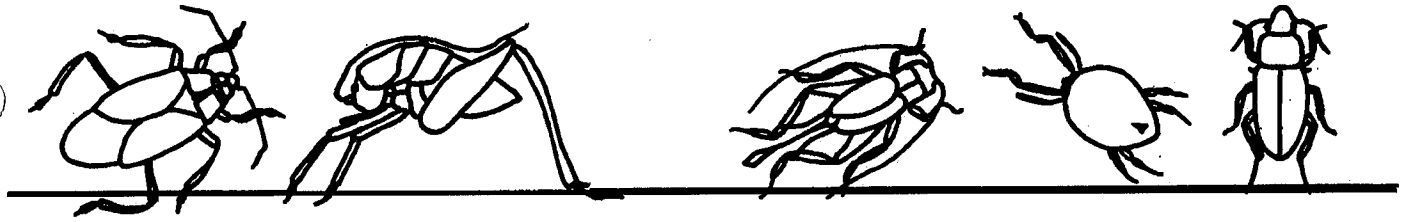
Clover mites are tiny (one-sixteenth inch) red or brown arthropods which can become a nuisance in the home in the spring and fall. During the summer they feed on plants in the lawn and usually go unnoticed. In the fall they move into homes and work their way between walls as they seek overwintering quarters. Once in the home the mites can be found swarming on the walls, floors, furniture, and window panes. If crushed, clover mites leave a reddish-brown stain that is noticeable on light colored surfaces of curtains, walls, and woodwork. A quick way to identify these mites is by observation of the long front legs with a magnifying lens.

Ground beetles

Ground beetles are black to brown and range in size from one-sixteenth to one-half inch long. They have slender antennae. Ground beetles are accidental invaders into the home, pose no health threat and cause no damage to food or fabric. In their outdoor environment these beetles are beneficial predators on other insects. In the fall these beetles may enter homes to seek hibernation shelters. There are well over 25,000 known species of ground beetles in the United States; only a few of these species turn up in homes.

Strawberry root weevil

The strawberry root weevil has a short weevil snout, is light brown to black, and about one-eighth inch long. This weevil is widely distributed throughout the United States but is more frequently found in the northern states. These weevils and their larvae feed on a variety of plants, such as strawberries, raspberries, rhododendrons, primrose, violets, and many other types of flowering plants. The larvae feed on the roots and the adults feed on the foliage. During August, adult root weevils begin to search for overwintering quarters and may enter homes. A strange behavior pattern characteristic of the strawberry root weevil in homes is to wander about, climbing walls to the ceiling and falling to the floor, only to begin the climb upward again.



Face fly

Face flies are usually pests in rural areas near livestock, especially cattle, but may also be found in urban locations. Face flies resemble house flies; both have similar life cycles and habits. Face flies are about one-half inch long, dark grey to black, and have four vertical stripes on the thorax. House flies are generally lighter in color.

During the summer, face flies are active in pasture areas. In the fall, as the days become shorter and cooler, face flies will begin to congregate on the outside of structures. Because of this behavior another common name for the species is the "autumn" fly. These flies will then crawl into attics, garages, basements, and between walls during the night. Sometimes face flies are mistaken for cluster flies, another fly which overwinters in the adult stage. Both aggregate in large numbers and are sometimes seen together. The spotted wing fly is another nuisance pest seen aggregating in the company of face and cluster flies.

Face flies will hibernate in homes in the adult stage. In the spring, as days become warmer, face, cluster, and spotted wing fly survivors emerge and become more active. Face, cluster and spotted wing flies are strictly nuisance pests, due to their presence in the home. None of these pests are harmful to man.

House fly

The house fly is found all over the world in association with man. Although it is primarily an annoyance pest, it has been known to transmit some diseases. The house fly can remain alive in the home all year long. It prefers not to breed in homes, but rather in decaying organic material found in garbage cans or compost piles. House flies are similar in appearance to face flies.

An effective method of determining the house fly apart from the face fly is by the area of the home in which they are found. House flies are found throughout the entire home all year round, while face flies are seen entering homes primarily in the fall. (See face fly for behavior.)

Cluster fly

Cluster flies are approximately five-eighths inch long and dark grey. The thorax is covered by nonmetallic golden hairs but has no distinct stripes or markings. The abdomen is grey with light colored patches. This pest's behavior is similar to the face fly's. (See face fly for behavior.)

Spotted wing fly

Spotted wing flies are about one-half to five-eighths inch long. The markings on this fly's wings are unique. The wings are sandy brown with darker spots or patches. A characteristic that helps easily identify the spotted wing fly is the way it flexes its wings while it walks. Spotted wing flies are seen from time to time clustering with face and cluster flies and their behavior is nearly identical. (See face fly for behavior.)

Rove beetles

Rove beetles are elongate, generally black beetles with very short wings. These beetles seldom exceed five-sixteenths inch in length. Rove beetles in search of overwintering quarters enter the home through basement window wells or foundation cracks and crevices. Rove beetles cause no damage but are a nuisance inside the home. Outdoors, rove beetles are predators in both the adult and larval stage, living in the thatch layer of lawns and mulch.

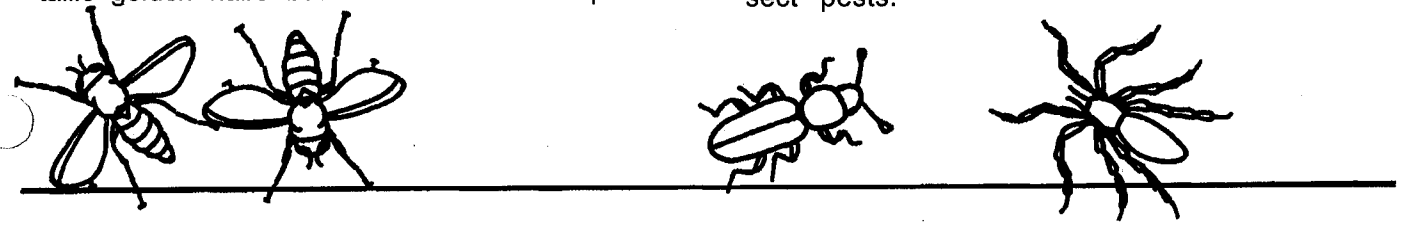
Spiders

Nuisance spiders

Nuisance spiders are predators and frequently stray into homes where they are not wanted. Though many people fear spiders, insect pest populations are controlled by spiders. These spiders have been known to bite, but only self-defense.

The most common of all spiders encountered in the home are called "house spiders." These spiders are responsible for the dirty corner cobwebs. These have been abandoned by the spiders because they did not yield enough prey. House spiders are found anywhere in the home but prefer basement corners. The large bulbous abdomen, light grey to tan coloring, and long, thin legs are common characteristics of house spiders.

Another spider that frequents homes is the "jumping spider. " Jumping spiders are compact, hairy, and have relatively short legs, Many jumping spiders are brightly colored and have been confused with black widows. Like house spiders, jumping spiders are beneficial because they prey on flies and other insect pests.



Poisonous spiders

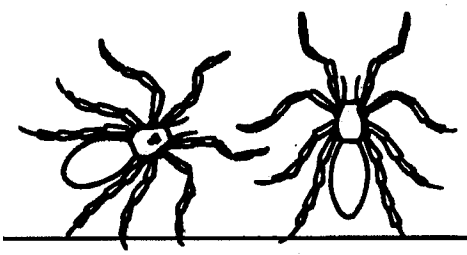
Two most feared spiders in the Upper Great Plains are the black widow and brown recluse.

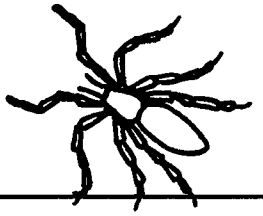
Black widow adult females are jet black with a red hourglass marking on the underside of the abdomen. Mature females are nearly one-half inch long. Mature males and immature widows (spiderlings) do not resemble adult females, but have markings and colorings similar to each other. The males have white streaks, stripes, or dots on top of the abdomen and two triangular red marks on the underside of the abdomen. Spiderlings are orange with white streaks and, if female, will become darker as they mature. The spiderlings may or may not have one or two red markings on the underside of the abdomen.

The male and female brown recluse are small, tan to brown, and have a darker fiddle-shaped marking on the upper surface of the cephalothorax (head-body region). The female constructs an irregular web in undisturbed places.

The brown recluse and black widow are very dangerous because of the venom they inject into their prey when biting. The brown recluse injects venom that produces a gangrenous slough of tissue near the site of the bite. A mild stinging sensation maybe experienced at the time of a bite, but most people are unaware they are being bitten. Pain may not be experienced for up to eight hours after the bite. After eight hours, a ring of dead tissue is usually noticed surrounding the bite area and this area becomes dark and brittle. The darkened area separates from the healthy tissue surrounding the bite in about seven to 14 days leaving an open wound. Healing of the wound depends upon the size of the affected area. Occasionally larger wounds may require a skin graft.

Black widows have a venom which produces an immediate immobilization of its prey which lasts for nearly 24 hours. When a black widow bites a human, a slight local swelling surrounding two small red spots is sometimes noticed. Pain occurs almost immediately at the site of the bite and becomes more intense after approximately three hours. General itching of the body, especially in the legs, is a common reaction. Headache, nausea, elevated blood pressure, spasms, and difficulty in breathing are some reactions reported in severe cases. The reactions of a black widow bite, mild or severe, disappear in about two to three days.





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